UNITED STATES DISTRICT COURT FOR THE
WESTERN DISTRICT OF PENNSYLVANIA

DONALD E. MEADOWS, JR. and AMANDA MEADOWS, husband and wife,	)	
Plaintiff,	)	Civil Action No. 02-2062
v.	)	Magistrate Judge Amy Reynolds Hay
ANCHOR LONGWALL AND REBUILD, INC., a West Virginia Corporation,	)	
Defendant.	)	

OPINION AND ORDER[1]

HAY, Magistrate Judge

Presently before the court is a Motion in Limine to Exclude Expert Testimony, filed by Anchor Longwall and Rebuild, Inc. ("Anchor Longwall"). For the reasons set forth below, the motion will be granted.

Plaintiffs, Donald E. Meadows, Jr. and Amanda Meadows, filed a complaint on November 29, 2002, bringing claims against Anchor Longwall for strict liability, negligence, breach of warranty, and emotional distress and loss of consortium, after Mr. Meadows was injured while pressurizing a mine shield against the roof of the Maple Creek Mine in Bentley, Pennsylvania, where he was employed. Plaintiffs allege that a fitting located in a shut off valve, which had been replaced by Anchor Longwall during a refurbishing project,[2] malfunctioned and

[1] In accordance with the provisions of 28 U.S.C. § 636(c) and Federal Rule of Civil Procedure 73, the parties consented to have a United States magistrate judge conduct all proceedings in this case, including the entry of a final judgment. See Doc. 55.

[2] Plaintiff's employer, Maple Creek Mines, contracted with Montgomery Equipment Company to repair approximately 189 longwall shields. Montgomery contracted with several repair companies, including Anchor Longwall, to perform the work. See Anchor

pulled loose from the valve assembly housing striking Mr. Meadows on the right side of his face. As a result, Mr. Meadows lost his right eye.[3]

Following the filing of a third-party complaint and several cross claims, the parties engaged in discovery and motions practice.[4] In advance of trial, Anchor Longwall filed the instant motion in limine, to which Plaintiffs responded and on which the court conducted a hearing. The following evidence is gleaned from the record.

The accident occurred on December 6, 2000, at approximately 3:20 a.m., while Donald Meadows was installing longwall shields in the Maple Creek Mine at Bentley. Mr. Meadows was employed by Maple Creek Mines as a longwall helper/longwall utility man. Longwall shields are placed in succession and immediately following the placement of one shield, the next shield, immediately adjacent and to the right of the shield placed would be installed. Once each shield is in place, its leg jacks (hydraulic lift cylinders) are pressurized to raise the canopy of the shield to the mine roof.[5]

Longwall's Partial Motion for Summary Judgment, Exh. A: Affidavit of P. Bruce Hill, ¶¶ 8-10 (Doc. 42). Anchor Longwall refurbished thirty-nine shields, replacing damaged components including hose kits and valves. Id. at ¶¶ 4, 7 and 10.

3 Complaint ¶¶ 9, 10.

4 Anchor Longwall filed a third-party complaint seeking contribution and indemnification against Lewis-Goetz and Company, Inc. ("Lewis-Goetz"), the successor-in-interest to Gooding & Shields Rubber Co., which allegedly supplied the valves in question, and Systems Stecko ("Stecko"), which purported designed and manufactured the valves. In addition, Stecko brought a counterclaim against Anchor Longwall and cross-claims against Lewis-Goetz, and Lewis-Goetz filed cross-claims against Anchor Longwall in which contribution and indemnification were sought. See Dkt. Nos. 36, 37, 40 & 57. Subsequently, the Court granted Anchor Longwall's partial motion for summary judgment on plaintiffs' strict liability claim, see Dkt. No. 70, granted summary judgment in favor of Lewis-Goetz, see Dkt. No. 97, and granted summary judgment in favor of Stecko, see Dkt. Nos. 97 and 113.

5 See Dkt. Nos. 120 & 129.

At the time of the accident, Mr. Meadows was involved in the process of placing, setting and raising a longwall shield. As part of this work, he operated a valve bank that controlled hydraulic and pressure hoses that allowed him to expand, open and set the shield in place. Mr. Meadows was engaged in manually pressurizing the shield known as Longwall International 045 ("Shield #45"),[6] which required him to be standing in close proximity to the hydraulic system, when a fitting located in a shut off valve pulled loose from the valve assembly housing, striking Mr. Meadows in the face.[7]

Plaintiffs hired Mark A. Sokalski, P.E. ("Sokalski"), to investigate the cause of the valve malfunction and render an opinion in this case. Sokalski opines that the accident occurred when Donald Meadows started "using manual levers ... he ended up a little out of sequence when he was doing it manually and left the ram bar down," which created a "spike" in pressure that over-pressurized a defective valve.[8] Sokalski further opines that the valve "exploded" because when Anchor Longwall refurbished this particular shield it omitted a check valve that would have relieved the over-pressurization.[9]

Anchor Longwall argues that Sokalski's opinion does not meet the tests of reliability and fit under Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993) and, therefore, is inadmissible.

---

[6] See Transcript of Hearing on Anchor Longwall's Motion in Limine ("Tr."), Dkt. No. 137, at Exh. 5.

[7] Normally this pressurization process is done remotely. Due to the absence of a remote hook-up cable, however, a determination was made to manually perform the pressurization. Tr. at Exh. 4. Prior to performing the manual manipulation, Mr. Meadows removed his safety glasses. See Forensic Engineering Report prepared by Mark A. Sokalski ("Sokalski Rpt."), Dkt. No. 99, p. 6 (referencing Donald Meadows' deposition testimony at page 45).

[8] Tr. 47.

[9] Tr. 46-47

Discussion

"Under the Federal Rules of Evidence, it is the role of the trial judge to act as a 'gatekeeper' to ensure that any and all expert testimony or evidence is not only relevant, but also reliable." Kannankeril v. Terminix International, Inc., 128 F.3d 802, 806 (3d Cir. 1997)(*citing* Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 589 (1993)). Rule 702 of the Federal Rules of Evidence governs the admissibility of expert testimony.[10]

Rule 702 has three major requirements. First, to qualify as an expert under the rule, a witness must possess sufficient qualifications in the form of knowledge, skills and training. See In re Paoli Railroad Yard PCB Litigation ("Paoli II"), 35 F.3d 717, 741 (3d Cir. 1994). The courts have interpreted this requirement liberally. Id. ("We have eschewed imposing overly rigorous requirements of expertise and have been satisfied with more generalized qualifications.").

Anchor Longwall does not focus its argument on the expert's qualifications. Sokalski received a bachelor's degree in chemical engineering in 1974, is licensed in Pennsylvania and Ohio as a Professional Engineer, and has experience in mechanical engineering as well as chemical engineering. Although he had no previous knowledge of or experience with hydraulics[11] in longwall mining applications, over the course of his career Sokalski gained

---

[10] Rule 702 provides:
> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

[11] Hydraulics is defined as the "physical science and technology of the static and dynamic behavior of fluids." The American Heritage® Dictionary of the English Language, Fourth Edition, Houghton Mifflin Company (2003).

knowledge of and experience with hydraulics in general.[12] Although he conceded that he is not a metallurgist and did not examine the valve that allegedly malfunctioned from the metallurgist's perspective,[13] he nevertheless appears to have sufficient qualifications to be permitted to testify as an engineering expert under Rule 702.

The second requirement of Rule 702 is that the expert must testify to "scientific, technical or other specialized knowledge." Fed.R.Evid. 702. In interpreting this requirement, the Supreme Court has concluded that "an expert's testimony is admissible so long as the process or technique the expert used in formulating the opinion is reliable." Daubert, 509 U.S. at 589. To be "reliable," the expert's opinion "must be based on the 'methods and procedures of science' rather than on 'subjective belief or unsupported speculation'; the expert must have 'good grounds' for his or her belief ... In sum, Daubert holds that an inquiry into the reliability of scientific evidence under Rule 702 requires a determination as to its scientific validity." Paoli II, 35 F.3d at 742 (*quoting* Daubert at 590). In evaluating whether a particular scientific methodology is reliable, i.e., scientifically valid, the court should take into account the following factors:

> (1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Id. at 742, n. 8. See also, Daubert, 509 U.S. at 593-94; United States v. Downing, 753 F.2d 1224, 1238 (3d Cir. 1985). Daubert emphasized that the "inquiry envisioned by Rule 702 is ... a

---

[12] Tr. 6-8 and 19-20.

[13] Tr. 55.

flexible one [and the] focus ... must be solely on principles and methodology, not on the conclusions they generate." 509 U.S. at 595. "The test of admissibility is not whether a particular scientific opinion has the best foundation or whether it is demonstrably correct. Rather, the test is whether the 'particular opinion is based on valid reasoning and reliable methodology.' " Oddi v. Ford Motor Company, 234 F.3d 136, 145-46 (*quoting* Kannankeril v. Terminix International, Inc., 128 F.3d 802, 806 (3d Cir. 1997)).

Anchor Longwall challenges the reliability and validity of Sokalski's causation hypothesis. Sokalski's hypothesis is premised on several conclusions. First, he concludes that the Stecko valve that separated and struck Mr. Meadows was defective in that its male threads were over-cut, which reduced its ability to fully and tightly grip the female threads thereby reducing the burst pressure to approximately one-half of its published design.[14] Second, Sokalski concludes that the mine's hydraulic system, which normally operates between 1700 and 3200 pounds per square inch ("psi") and operates at 1700 psi when raising or putting up a shield, and which has a rating pressure[15] of 3500 psi, experienced a "spike" in pressure exceeding 100,000 psi on the Stecko valve.[16] Third, Sokalski concludes that this "spike" or amplification in pressure was generated due to the ram bar on Shield #45 being in its "down" position.[17] Fourth, Sokalski concludes that there was no check valve between the two hoses that would have connected into

---

[14] Tr. 67; "Sokalski Rpt.," Dkt. No. 99, p. 2.

[15] Rating pressure is the safest, highest operating pressure. Tr. 88.

[16] Tr. 41, 45 and 72-74.

[17] Tr. 43-51 and 93.

the valve assembly housing.[18] Lastly, he concludes that because the ball in the valve that allegedly malfunctioned was "ovalled" and dented, extremely high pressure occurred there.[19]

As Daubert and Downing have instructed, the trial court must take into account various factors in evaluating whether the process Sokalski used in formulating his opinion is reliable. See Paoli II, 35 F.3d at 742. One of those factors includes "the testability of the expert's hypothesis ('whether it can be (and has been) tested')." Id., quoting Daubert, 509 U.S. at 593. The Advisory Committee Notes to Rule 702 indicate that the inquiry concerning testability is "whether the expert's theory can be challenged in some objective sense, or whether it is instead simply a subjective, conclusory approach that cannot reasonably be assessed for reliability." In the instant case, even the expert's own testing does not support his hypothesis.

Sokalski purchased three Stecko ball valves from the same lot as the valve asserted to have come from Shield #45 and subjected two of these exemplar valves to pressure tests.[20] He connected the valves to a metal pipe filled with water, then used an air pump to slowly increase the pressure on the water in the pipe. He tested the valves in both the open and closed positions. According to his testing, the valves "failed," that is to say, "an infinitesimal leak" of water escaped from the valve, at pressure in the 13,000 psi and 15,000 psi range.[21]

Sokalski conceded, however, that his pressure tests were not actually exemplary since he was increasing the pressure slowly, as opposed to the dynamic spike he opines occurred

---

[18] Tr. 50-53.

[19] Tr. 48-49.

[20] He subjected the third Stecko ball valve to sub-zero temperatures to test whether freezing water caused the valve to separate. The valve did not separate in this test and, thus, he concluded that freezing water did not cause the malfunction at Maple Creek Mine. Tr. 24.

[21] Tr. 30.

at the time of the accident.[22] As well, he admitted that his tests did not replicate the assembly of hoses, connectors and Stecko block valve that existed in the mine since he did not use any hoses or connectors in his tests.[23] Sokalski did not research the maximum burst pressure of the hoses or connectors or otherwise test them, with or without a check valve.[24] He speculated that even had he used hoses, with the dynamic spike in pressure that occurred in the accident the valve would have separated before the hoses would have blown:

> In this case we are talking about a phenomenal pressure at a dynamic spike, the predictions that happen, I would have to spend years doing a thesis on it to determine exactly the phenomenas [sic] that occur. And I would have to say the possibility definitely exists that you could blow the valve and not blow the hose. When you do a slow test you blow the hose.

Tr. 90.

Additionally, Sokalski could not point to any reference material, publication or literature that described the failure scenario he presented.[25] There is no evidence that his theory or methodology has been subjected to peer review or that it is generally accepted. As well, there is no evidence concerning any known or potential error rates or any control standards. In short, Plaintiffs have not demonstrated by a preponderance of the evidence that Sokalski's opinion is "based on valid reasoning and reliable methodology." Kannankeril, 128 F.3d at 806. Therefore, the opinion is properly excluded.

---

22 Tr. 31 and 89.

23 Tr. 71-72 and 78.

24 Id.

25 Tr. 79.

Plaintiffs argue that because Sokalski utilized proven laws of physics and principles of mathematics his opinion is perforce reliable. Plaintiffs have not provided the Court with authority for this proposition and we have found none.

Plaintiffs also argue that Anchor Longwall is focusing not on the scientific reliability of Sokalski's opinion but on his conclusions. Although, as Plaintiffs point out, Daubert requires that the focus of the admissibility inquiry must be solely on principles and methodology, not on the conclusions that they generate, the Supreme Court later amplified that principle, holding that

> conclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data. But nothing in either Daubert or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.

General Elec. Co. v. Joiner , 522 U.S. 136, 146 (1997). "[A]though principles and methodology remain the focus of a Daubert inquiry, 'this focus need not completely pretermit judicial consideration of an expert's conclusions.' " In re TMI Litigation, 193 F.3d 613, 682 (3d Cir. 1999)(citation omitted). Here, Sokalski's opinion is connected to existing data only by his *ipse dixit*.

The third requirement for admissibility under Rule 702 is that the expert's testimony must "fit," in that it must "assist the trier of fact to understand the evidence or to determine a fact in issue." Paoli II, 35 F.3d at 742-43. Here, admissibility depends in part on demonstrating that the scientific knowledge is connected to the question at issue. Id. at 743. In other words, fit "goes primarily to relevance." Daubert, 509 U.S. at 591. "Expert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful." Id.

(quotation marks and citations omitted). Stated differently, expert testimony based on assumptions lacking factual foundation in the record is properly excluded. See Stecky v. Bell Helicopter Textron, Inc., 295 F.3d 408, 414 (3d Cir. 2002)("It is an abuse of discretion to admit expert testimony which is based on assumptions lacking any factual foundation in the record."); Elcock v. Kmart Corp., 233 F.3d 734, 755 n. 13 (3d Cir. 2000)("[A] lost future earnings expert who renders an opinion about a plaintiff's future economic harm based on economic assumptions not present in the plaintiff's case cannot be said to 'assist the trier of fact,' as Rule 702 requires. This type of an opinion misleads the fact-finder and arguably does not comply with the 'fit' requirement of that Rule."); Benjamin v. Peter's Farm Condominium Owners Ass'n., 820 F.2d 640, 642 (3d Cir. 1983)(finding expert testimony must be based on "the proper factual foundation").

Anchor Longwall argues that even if it could be said that Sokalski's opinion is based on valid reasoning and reliable methodology, his testimony will not assist the trier of fact, i.e., the testimony does not "fit." Anchor Longwall points to several of Sokalski's underlying assumptions or conclusions in support of their argument.

As previously noted, one of Sokalski's conclusions is that Anchor Longwall failed to place a check valve between the two hoses that would have connected into the valve assembly housing and, according to Sokalski, would have prevented any over-pressurization. Because Sokalski did not examine any of the shields that Anchor Longwall refurbished he admitted that he does not know first-hand whether check valves were or were not installed.[26] His conclusion is premised on his *belief* that a certain diagram created by Anchor Longwall represents the

[26] Tr. 61-62.

complete layout of all component parts utilized by the company in its refurbishing of Shield #45 and his observation that this diagram does not reflect a check valve in the location where he opines one should have been installed.[27] Ed Groff, senior design engineer for Anchor Longwall, however, appears to have provided uncontroverted testimony that the diagram Sokalski relies upon represents simply a layout of where the hoses in the hydraulic system go and that there is another schematic, from the original equipment manufacturer of the shield, that contains *all* of the component parts, including check valves.[28] Additionally, Sokalski concedes that Anchor Longwall ordered some fifty check valves for the thirty-nine machines they refurbished and *assumes* that Anchor Longwall installed the check valves "somewhere," just not at the location Sokalski opines was necessary.[29] Thus, Sokalski's conclusion that Anchor Longwall failed to include the appropriate check valve is tenuous at best.

It is clear, however, that there is absolutely no "fit" between Sokalski's tests and the facts. First, as already noted, the testing did not replicate the assembly of hoses, connectors and valves present at the time of the accident. Nor did Sokalski subject the valves to the 100,000 psi "spike" in pressure he opines occurred and caused the valve to separate. Additionally, the tests Sokalski conducted on the Stecko valves did not duplicate the results that occurred in the mine since no valve separated in his tests and there was no evidence of any ovalling or indentation on the ball portion of the valve after his tests. His tests simply demonstrated that when a Stecko ball valve is connected to a metal pipe instead of a hose assembly and then slowly

---

[27] Tr. 81-87 and 98.

[28] See Doc. 86-2, pp. 30-34.

[29] Tr. 98.

subjected to increased pressure topping out at 30,000 psi, instead of a dynamic 100,000 psi "spike" in pressure, the valve will fail and allow a bit of fluid to seep through the connection, but will not explode or pull apart. Given the lack of resemblance Sokalski's tests have to the events in the mine, it is difficult to say how, if at all, these tests could assist the jury in determining what caused the accident.[30]

Finally, and perhaps most significantly, Sokalski's hypothesis relies on a crucial fact, i.e., that the intensification or "spike" of pressure was generated by the base lift jack/cylinder[31] portion of the shield because the ram bar was pressing down into the earth.[32] Sokalski acknowledged that the presence of the base lift cylinder and ram bar are crucial to his opinion.[33]

The uncontroverted evidence, however, reflects that when Shield #45 was initially delivered to Anchor Longwall for refurbishing it did not contain a base lift ram bar nor a base lift jack housing.[34] Further, it is undisputed that Anchor Longwall did not put in a new base lift ram bar or new base lift housing but, instead, capped off the hoses that went to the extend and retract

---

30 Indeed, even if Sokalski's tests were somehow relevant, which we find they are not, the tests might very well confuse or mislead the jury and, therefore, Sokalski's testimony would be properly excluded under F.R.E. 403.

31 Generally, the longwall shields have two large lift cylinders that raise the canopy to the mine roof. A base lift cylinder sits between these two larger lift cylinders and if the toes or feet of those large cylinders are being buried in the mud, a worker can open the valve to activate the base lift jack to push the ram bar down to lift the feet out of the mud. Tr. 36 and 107.

32 Tr. 93-94.

33 Tr. 74.

34 Tr. 102-103; Exh. 1.

ports on the base lift cylinder and sent Shield #45 to the mine.[35] Additionally, testimony by an inspector who was present in Maple Creek Mine on the date of the accident indicates that his notes reflect that the shield on which Mr. Meadows was working at the time of the accident was Shield #45 and "[t]he base lift jack was missing on [Shield #45]."[36] Thus, the unrefuted evidence of record indicates that Shield #45 lacked the crucial components necessary to support Sokalski's opinion. Accordingly, by his own admission, Sokalski's hypothesis fails and his opinion is properly excluded.

Plaintiffs, however, speculate that there are other "conceivable option[s]," specifically, that Anchor Longwall's paperwork is not correct or a shield other than Shield #45 was involved in the accident.[37] Plaintiffs argue that whether there was or was not an error in the paperwork or whether some other shield was involved is a matter to be left for determination at trial. We disagree.

In the first instance, now is the time when Plaintiffs must establish the reliability and relevancy of Sokalski's opinion. Discovery has long since closed and, knowing full well the basis for their own expert's opinion, if Plaintiffs had evidence that Anchor Longwall's records concerning Shield #45 were inaccurate, reason dictates that they would surely have produced this evidence during the Daubert hearing. Moreover, whether some other shield might have been

---

[35] Tr. 103-104; Exh. 2. It appears that Anchor Longwall sent at least three shields to Maple Creek Mine that did not contain a base lift cylinder. Tr. 105. The shields can be operated without base lift jacks/cylinders. Tr. 104-105.

[36] Tr. Exh. 5. Sokalski admitted that he did not review the inspector's deposition testimony prior to reaching his opinion in this case. Tr. 75-76.

[37] Tr. 115.

involved is most assuredly a question to be answered before not during trial since, as previously noted, Anchor Longwall worked on only thirty-nine of 189 shields sent to Maple Creek Mine. If Plaintiffs want to pursue the theory of negligence against Anchor Longwall that a shield other than Shield #45 malfunctioned, Plaintiffs would need to establish that this "other" shield was one Anchor Longwall refurbished and was not one of the other two Anchor Longwall sent that lacked the base lift ram and jack. Stated differently, because there are several firms that refurbished the 189 shields, and because Anchor Longwall is the sole remaining defendant, the fact finder cannot be allowed to speculate which firm refurbished the shield that is purported to have malfunctioned.

Plaintiffs also argue that, at the very least, they have established an issue of fact for the jury. Plaintiffs point to Mr. Meadows' testimony that he was told by others -- since he, himself, does not know -- that he was struck by a base lift valve. Assuming that Plaintiffs could produce a witness who would testify to this fact at trial, at most it might prove that Mr. Meadows was working on a shield other than Shield #45. As discussed, in order to proceed to trial against Anchor Longwall, however, Plaintiffs would need to establish that this other shield was one that Anchor Longwall refurbished.[38] It is apparent that Plaintiffs do not have evidence to support this alternative theory.

This court is not unsympathetic to Mr. Meadows. He suffered a horrific and catastrophic injury while setting up the longwall mine shield. Nevertheless, in order to hold Anchor Longwall liable for this injury Plaintiffs must demonstrate, through an expert, that Anchor Longwall was negligent. Of necessity, expert testimony is required to establish

---

[38] Tr. 108.

negligence here under Plaintiffs' theory of the case. Because we have found that the expert's testimony lacks the requisite reliability and fit for admissibility and, therefore, must be excluded, Plaintiffs cannot establish negligence and, thus, their claim of negligence must be dismissed.

An appropriate Order follows.

UNITED STATES DISTRICT COURT FOR THE
WESTERN DISTRICT OF PENNSYLVANIA

DONALD E. MEADOWS, JR. and AMANDA MEADOWS, husband and wife,	)	
Plaintiff,	)	Civil Action No. 02-2062
v.	)	
	)	Magistrate Judge Amy Reynolds Hay
ANCHOR LONGWALL AND REBUILD, INC., a West Virginia Corporation,	)	
Defendant.	)	

JUDGMENT ORDER

AND NOW, this 3rd day of May, 2007, for the reasons stated in the accompanying Opinion, IT IS HEREBY ORDERED that the defendant's Motion in Limine to Exclude Expert Testimony is GRANTED.

IT IS FURTHER ORDERED that final judgment of this Court is entered in favor of the defendant, Anchor Longwall and Rebuild, Inc., and against the plaintiffs, Donald E. Meadows, Jr. and Amanda Meadows, pursuant to Rule 58 of the Federal Rules of Civil Procedure.

IT IS FURTHER ORDERED that pursuant to Rule 4(a)(1) of the Federal Rules of Appellate Procedure, if the plaintiffs desire to appeal from this Order, they must do so within thirty (30) days by filing a notice of appeal as provided in Rule 3, Fed.R.App.P.

/s/ Amy Reynolds Hay
United States Magistrate Judge

cc: All counsel of record by Notice of Electronic Filing